

2014 Iowa Woodland Suitability Recommendations

In 2005, the Iowa NRCS and Iowa DNR agreed to create new groupings of soils and revise the recommendations for tree and shrub species for those soil groups in Iowa. There were several reasons for this revision: there were errors in the previous recommendations; there were new soils identified and mapped; and both agencies wanted a user-friendly system for employees and the public to use.

The following tables are designed to serve as a guideline for matching trees and shrubs to specific soil types within Iowa. To use the guide:

1. Locate the soil type in Column 1 of Table 1;
2. Determine the Conservation Suitability Group (CSG) for the soil type; and
3. Go to the appropriate CSG in Table 2 and review the list of trees and shrubs that are best suited to the soils in that group. **Non-native species are marked with (nn). Species especially susceptible to insects and/or diseases are marked with (✖).**

This manual is intended as a guide only and is not intended to replace the judgment of a forester or of other natural resource professionals in determining a site's capability to grow specific tree and shrub species. Other factors such as slope, aspect and geographic location in the state should also be considered.

Soil Type	CSG
Ackmore	1
Adair	1
Adco	1
Adrian	10
Afton	2
Ainsworth	4
Albaton	2
Allamakee	3
Allendorf	6
Alluvial Land	10
Amana	1
Ambraw	2
Ames	2
Angus	3
Animal Waste	10
Ankeny	3
Annieville	3
Ansgar	2
Anthon	3
Appanoose	2
Aquents	2
Aquolls	2
Arbor	3
Aredale	3
Arenzville	3
Arispe	1
Armstrong	1
Arthur	3
Ashdale	3
Ashgrove	3
Atkinson	3

Atterberry	1
Aureola	5
Backbone	6
Bassett	3
Bauer	6
Bearpen	1
Beckwith	2
Belinda	2
Belmann	2
Benclare	4
Bentonsport	8
Bertram	6
Bertrand	3
Billett	5
Biscay	2
Bixby	6
Blake	1
Blencoe	1
Blend	1
Blue Earth	10
Bode	3
Bolan	5
Boone	6
Boots	10
Borrow Pit	10
Brady	1
Bremer	2
Brownton	2
Bucklick	4
Bucknell	1
Buckney	7
Built Wetland	10
Burcham	3
Burchard	3
Burkhardt	7
Calamine	2
Calco	8W
Calcousta	2
Caleb	3
Camden	3
Caneek	2
Canisteo	2
Canoe	1
Cantril	1
Carlow	2
Carr	5
Castana	8
Cerlin	1
Chaseburg	3
Chelsea	7
Chequest	2
Churchtown	3
Chute	7
Clanton	4
Clarinda	2
Clarion	3
Clearfield	2

Clinton	4
Clyde	2
Coggon	3
Cokato	3
Coland	2
Collinwood	1
Colo	2
Cooper	1
Copaston	10
Coppock	1
Cordova	2
Corley	2
Cornell	4
Corwith	1
Cosmos	2
Cott	5
Coyne	3
Creal	1
Cresco	3
Creskin	4
Crippin	1
Crofton	8
Curran	1
Cylinder	1
Danbury	3
Darfur	2
Darwin	2
Davis	3
Delft	2
Dells	1
Deloit	3
Dempster	6
Denrock variant	1
Derinda	6
Dickinson	5
Dickman	7
Dinsdale	3
Dinsmore	3
Dockery	1
Dodgeville	6
Dolbee	2
Donatus	6
Donnan	1
Dorchester	8
Douds	3
Dow	8
Downs	3
DuPage	3
Dubuque	6
Dumps	10
Dunbarton	10
Dundas	2
Dunkerton	1
Edina	2
Egan	3
Eitzen	3
Eleroy	3

Eleva	6
Ella	3
Elon	8W
Elrick	5
Elrin	1
Elvers	2
Elvira	2
Ely	1
Emeline	10
Estherville	7
Everly	3
Exette	3
Exira	3
Fairhaven	5
Farrar	3
Faxon	2
Fayette	3
Festina	3
Fieldon	2
Fill Land	10
Finchford	7
Flagler	5
Floris	3
Floyd	1
Fluvaquents	2
Forney	2
Fostoria	1
Franklin	1
Frankville	6
Fruitfield	7
Gale	6
Galland	1
Galva	3
Gara	3
Garmore	3
Garwin	2
Gasconade	10
Gilford	2
Gillett Grove	2
Given	1
Gorin	1
Gosport	6
Goss	4
Grable	8
Graceville	3
Granby	2
Grantcenter	1
Gravel Pits	10
Grundy	1
Guckeen	1
Gullied Land	10
Haig	2
Hamburg	8
Hanlon	3
Hanska	2
Harcot	8W
Harps	8W

Harpster	8W
Havana	2
Havelock	8W
Hawick	7
Hayden	3
Hayfield	1
Haynie	8
Hedrick	3
Hesch Variant	6
Histosols	10
Hixton	6
Holly Springs	8W
Hoopeston	1
Hornick	1
Houghton	10
Humeston	2
Huntsville	3
Ida	8
Inton	3
Ion	3
Jackson	3
Jacwin	1
Jameston	2
Judson	3
Kalona	2
Kamrar	4
Kanaranzi Variant	5
Kandiyohi	1
Kasson	3
Keg	5
Kenmoor	4
Kennebec	3
Kensett	1
Kenyon	3
Keomah	1
Keosaqua	3
Keswick	4
Kilkenny	4
Killduff	3
Kingston	1
Klinger	1
Klingmore	1
Klossner	2
Klum	5
Kniffin	1
Knoke	8W
Knox	3
Kossuth	2
Koszta	1
Lacrescent	5
Ladoga	4
Lamoni	1
Lamont	5
Landes	5
Lanyon	2
Larpenteur	1
Lawler	1

Lawson	1
La Sueur	1
Lemond	8W
Lerdal	1
Lester	3
Letri	2
Lilah	7
Limecreek	3
Linder	1
Lindley	3
Lineville	1
Liscomb	3
Liston	8
Loamy terrace escarpments	10
Lossing	1
Lourdes	3
Luana	5
Luther	1
Luton	2
Lycurgus	3
Macksburg	1
Madelia	2
Mahaska	1
Malvern	1
Marcus	2
Marlean	5
Marna	2
Marquis	3
Marshall	3
Marshan	2
Martinsburg	3
Massbach	3
Maxfield	2
Maxmore	2
May City	5
Mayberry	4
Mayer	8W
McCreath	1
McPaul	8W
Medary	4
Millington	8
Minden	2
Minnetonka	2
Modale	8W
Moingona	3
Moneta	8
Monona	3
Montieth	6
Moody	6
Morconick	7
Mottland	8
Moville	1
Mt. Carroll	3
Mt. Sterling	2
Muck	10
Mula	8
Muscatine	1

Muskego	10
Mystic	1
Napa	9
Napier	3
Nasset	3
Nevin	1
New Glarus	3
New Vienna	3
Nicollet	1
Niota	2
Nira	3
Nishna	8W
Nodaway	3
Nordness	10
Northboro	3
Norville	3
Oakton	1
Ocheda	1
Ocheyedan	3
Okaw	2
Okoboji	2
Olin	5
Olmitz	3
Omadi	3
Omsrud	3
Onawa	8W
Oran	1
Orion	1
Orthents	10
Orwood	3
Ossian	2
Ostrander	3
Otley	4
Otter	2
Ottosen	1
Owego	2
Paint Creek	4
Palms	10
Percival	8W
Perks	7
Pershing	1
Pillot	5
Pinicon	1
Pits	10
Pits, Clay	10
Pits, Sand & Gravel	10
Port Byron	3
Primghar	1
Protivin	1
Psammaquents	2
Quarries	10
Quiver	2
Racine	3
Racoon	2
Raddle	3
Radford	1
Ransom	1

Rathbun	1
Rawles	8
Readlyn	1
Reeds Creek	5
Renova	3
Revere	8W
Riceville	1
Richwood	3
Ridgeport	5
Ridgeton	3
Rinda	2
Ripon	6
River Wash	10
Rock Outcrop	10
Rocksan	8W
Rockton	6
Rodney	8W
Roine	3
Rolfe	2
Rollingstone	4
Roseville	6
Rossfield	3
Rowley	1
Rozetta	3
Rubio	2
Rushmore	2
Rushville	2
Russell	3
Sable	2
Sac	3
Salida	7
Salix variant	3
Sandy Escarpments	10
Sarpy	7
Sattre	5
Saude	5
Sawmill	2
Schapville	6
Schley	1
Scroll	8W
Seaton	3
Sewage lagoon	10
Seymour	1
Shaffton	1
Shandep	2
Sharpsburg	4
Shelby	3
Shellwood	8
Shorewood	1
Shullsburg	1
Sigglekov	1
Smithland	1
Snider	1
Sogn	10
Soloman	2
Sparta	7
Sperry	2

Spicer	8W
Spillco	1
Spillville	3
Steep Rock Land	10
Steinauer	8
Storden	8
Strahan	3
Strip Mine Spoils	10
Stronghurst	1
Sunburg	5
Taintor	2
Talcot	8W
Tallula	3
Tama	3
Tell	5
Terril	3
Thebes	3
Thorp	2
Ticonic	8
Tieville	8W
Tilfer	8W
Timula	3
Titus	2
Toolesboro	1
Traer	2
Trent	3
Tripoli	2
Truman	3
Turlin	1
Tuskeego	2
Udfluvents	10
Udolpho	2
Udorthents	10
Urban land	10
Uturin	8W
Van Meter	6
Vesser	2
Village	3
Vinje	4
Volney	5
Vore	8
Wabash	2
Wacousta	2
Wadena	5
Waldorf	2
Walford	2
Wapsie	5
Waste Treatment	10
Watkins	3
Watseka	1
Waubeek	3
Waucoma	3
Waukee	5
Waukegan	5
Webster	2
Weller	4
Wentworth	3

Whalan	6
Whittier	5
Wilmonton	1
Wilsey	8
Winneshiek	6
Winterset	2
Wiota	3
Woodbury	2
Worthen	3
Yellowriver	3
Zenor	5
Zook	2
Zwingle	2

Recommended Species for each Soil Group**(nn)** Denotes non-native to Iowa**()** Denotes a species especially susceptible to insects and/or disease

CSG	Description	Hardwoods	Conifers	Shrubs
1 Moderately Wet	<p>These deep soils are somewhat poorly drained with a seasonal high water table of 1 to 3.5 feet during the growing season (unless artificially drained). They contain less than 5% calcium carbonate. Soils are typically neutral to moderately acid.</p> <p>Suitability of this soil for: <u>Upland Oaks = moderately high</u> <u>Conifers = low</u> <u>Bottomland Hardwoods = high</u></p> <p>SI= 56-65 Production = 150-199 board feet/acre/year</p>	<p><u>Hardwoods</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • Bur Oak • Pin Oak • Swamp White Oak • Walnut (consult forester) • Pecan (consult forester) • Hackberry • Kentucky Coffee Tree • Shellbark Hickory (consult forester) • River Birch • Silver Maple • Sycamore • Cottonwood • Hybrid Poplar (nn) • Willow 	<p><u>Conifers</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • E. Red Cedar • Bald Cypress (nn) • Tamarack (nn) • European Larch (nn) 	<p><u>Shrubs</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • American Plum • Arrowwood • Buttonbush • Choke Cherry • Crabapple • Dogwood, Gray • Dogwood, Silky • Dogwood, Redosier • Elderberry • Hawthorn • Hazelnut • Highbush Cranberry • Nanking Cherry (nn) • Nannyberry • Ninebark • E. Redbud • Sandbar Willow • Serviceberry • Viburnum spp. • Paw Paw • Winterberry

CSG	Description	Hardwoods	Conifers	Shrubs
<p>2</p> <p>Wet</p>	<p>These deep soils are poorly drained with a seasonal high water table within 1 foot of the soil surface during the growing season (unless artificially drained). These soils also appear on the Iowa list of Hydric soils unless they are organic soils, in which case they will be in Group 10. They contain less than 5% calcium carbonates. Soils are typically neutral to moderately acid.</p> <p>Suitability of this soil for: <u>Upland Oaks = low</u>; <u>Conifers = low</u> <u>Bottomland Hardwoods = moderately high</u></p> <p>SI= <45 Production = <100 board feet/acre/year</p>	<p><u>Hardwoods</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • Bur Oak • Pin Oak • Swamp White Oak • Hackberry • River Birch • Shellbark Hickory (consult forester) • Silver Maple • Sycamore • Cottonwood • Willow 	<p><u>Conifers</u> are typically not suitable for these sites.</p> <ul style="list-style-type: none"> • Bald Cypress (nn) • Tamarack (nn) 	<p><u>Shrubs</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • Buttonbush • Dogwood, Silky • Dogwood, Redosier • Elderberry • Winterberry
<p>3</p> <p>Well Drained Moist Loamy</p>	<p>These deep medium textured soils are moderately well or well drained. These soils typically contain 18-35% clay in the series control section. They are typically neutral or slightly acidic and have high available water capacity.</p> <p>Suitability of this soil for: <u>Upland Oaks = very high</u> <u>Conifers = very high</u> <u>Bottomland Hardwoods = very high</u></p> <p>SI = 76-85 Production = 250-300 board feet/acre/year</p>	<p><u>Hardwoods</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • Black Oak • Bur Oak • Chinkapin Oak • Red Oak • Swamp White Oak • White Oak • Walnut • Pecan (consult forester) • Hackberry • Basswood • Kentucky Coffee Tree • Black Cherry • Shagbark Hickory • Hard Maple (Black, Sugar) • Silver Maple • Cottonwood • Hybrid Poplar (nn) • Butternut 	<p><u>Conifers</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • E. Red Cedar • E. White Pine • Jack Pine (nn) • Red Pine (nn) • Norway Spruce (nn) • White Spruce (nn) • White/Concolor Fir (nn) • Arborvitae (N. White Cedar) (nn) • Serbian Spruce (nn) • Cannan Fir (nn) • European Larch (limited to middle row of 3 row conifer windbreak) (nn) 	<p><u>Shrubs</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • American Plum • Arrowwood • Buttonbush • Choke Cherry • Crabapple • Dogwood, Gray • Dogwood, Silky • Dogwood, Redosier • Elderberry • Hawthorn • Hazelnut • Highbush Cranberry • Nanking Cherry (nn) • Nannyberry • Ninebark • E. Redbud • Serviceberry • Viburnum spp. • Paw Paw • Blackhaw • Black Chokeberry (Aronia)

CSG	Description	Hardwoods	Conifers	Shrubs
4 Well Drained Clayey	<p>These deep fine textured soils are well drained or moderately well drained. They typically contain > 35% clay in the series control section. They are typically neutral or slightly acidic and have high available water capacity.</p> <p>Suitability of this soil for: <u>Upland Oaks = High;</u> <u>Conifers = Moderately High</u> <u>Cottonwood type species = High</u></p> <p>SI= 66-75. Production = 200-249 board feet/acre/year</p>	<p><u>Hardwoods</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • Bur Oak • Pin Pak • Red Oak • Swamp White Oak • White Oak • Walnut • Pecan (consult forester) • Hackberry • Basswood • Kentucky Coffee Tree • Black Cherry • Shagbark Hickory • Hard Maple (Black, Sugar) • Silver Maple • Cottonwood • Hybrid Poplar (nn) 	<p><u>Conifers</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • E. Red Cedar • E. White Pine • Jack Pine (nn) • Red Pine (nn) • Norway Spruce (nn) • White Spruce (nn) • White/Concolor Fir (nn) • Arborvitae (N. White Cedar) (nn) • Serbian Spruce (nn) • European Larch (limited to middle row of 3 row conifer windbreak) (nn) 	<p><u>Shrubs</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • American Plum • Arrowwood • Crabapple • Dogwood, Gray • Dogwood, Silky • Dogwood, Redosier • Elderberry • Hawthorn • Hazelnut • Highbush Cranberry • Nanking Cherry (nn) • Nannyberry • Ninebark • E. Redbud • Serviceberry • Viburnum spp. • Blackhaw • Black Chokeberry (Aronia)
5 Well Drained Dry Loamy	<p>These deep medium textured soils are well or moderately well drained. These soils typically contain 8-18% clay in the series control section. Sand and/or gravel in the subsoil is common. They are typically neutral or slightly acid and have medium or low available water capacity.</p> <p>Suitability of this soil for: <u>Upland Oaks = moderately high</u> <u>Conifers = moderately high</u> <u>Bottomland Hardwoods = moderately high</u></p> <p>SI = 56-65 Production = 150-199 board feet/acre/year</p>	<p><u>Hardwoods</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • Black Oak • Bur Oak • Red Oak • Chinkapin Oak • White Oak • Walnut (consult forester) • Hackberry • Black Cherry • Hickory • Butternut  	<p><u>Conifers</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • E. Red Cedar • E. White Pine • Jack Pine (nn) • Red Pine (nn) • Norway Spruce (nn) • White Spruce (nn) • Concolor fir (nn) • Serbian Spruce (nn) 	<p><u>Shrubs</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • American Plum • Arrowwood • Buttonbush • Chokecherry • Crabapple • Dogwood, Gray • Hawthorn • Hazelnut • Highbush Cranberry • Nanking Cherry (nn) • Nannyberry • Ninebark • Serviceberry • Viburnum spp. • Paw Paw • Blackhaw • Black Chokeberry (Aronia)

CSG	Description	Hardwoods	Conifers	Shrubs
6 Moderately Deep	<p>These well and moderately well drained soils are underlain by weathered shale, limestone, or sandstone at depths of 20 inches to 40 inches. They are typically neutral to slightly acidic.</p> <p>Suitability of this soil for: <u>Upland Oaks = high</u> <u>Conifers = high</u> <u>Bottomland Hardwoods = high</u></p> <p>SI = 66-75 Production = 200-249 board feet/acre/year</p>	<p><u>Hardwoods</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • Black oak • Bur Oak • Red Oak • Swamp White Oak • White Oak • Walnut - (consult forester) • Hackberry • Basswood • Kentucky Coffee Tree • Black Cherry • Hickory • Hard Maple (Black, Sugar) • Silver Maple • Sycamore • Cottonwood • Hybrid Poplar (nn) • Butternut  	<p><u>Conifers</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • E. Red Cedar • E. White Pine • Jack Pine (nn) • Red Pine (nn) • Norway Spruce (nn) • White Spruce (nn) • White/Concolor Fir (nn) • Arborvitae (N. White Cedar) (nn) • European Larch (nn) 	<p><u>Shrubs</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • American Plum • Arrowwood • Buttonbush • Crabapple • Dogwood, Gray • Dogwood, Silky • Dogwood, Redosier • Elderberry • Hawthorn • Hazelnut • Highbush Cranberry • Nanking Cherry (nn) • Nannyberry • Ninebark • E. Redbud • Serviceberry • Viburnum spp. • Paw Paw • Blackhaw
7 Deep Sandy	<p>These well to excessively drained soils are sandy throughout the soil profile. They are typically slightly acid or neutral. Available water capacity is low.</p> <p>Suitability of this soil for: <u>Upland Oaks = moderate</u> <u>Conifers = moderately high</u> <u>Bottomland Hardwoods = moderately high</u></p> <p>S I = 46-56 Production = 100-149 board feet per acre per year</p>	<p><u>Hardwoods</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • Black Oak • Bur Oak • Red Oak • White Oak • Hackberry • Hickory • Butternut  	<p><u>Conifers</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • E. Red Cedar • E. White Pine • Jack Pine (nn) • Red Pine (nn) • Concolor fir (nn) 	<p><u>Shrubs</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • American Plum • Arrowwood • Chokecherry • Crabapple • Dogwood, Gray • Hawthorn • Hazelnut • Nanking Cherry (nn) • Ninebark • Viburnum spp. • Blackhaw
8 Calcareous	<p>These deep moderately well to well drained soils have a high concentration of calcium carbonate in the soil profile. They are moderately to strongly alkaline.</p>	<p><u>Hardwoods</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • Bur Oak • Red Oak • Chinkapin Oak • White Oak • Hackberry • Shagbark Hickory • Cottonwood • Hybrid Poplar (nn) 	<p><u>Conifers</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • E. Red Cedar • Jack Pine (nn) 	<p><u>Shrubs</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • American Plum • Dogwood, Gray • Nanking Cherry (nn) • Nannyberry • Ninebark • Blackhaw • Common Liliac

CSG	Description	Hardwoods	Conifers	Shrubs
8W Wet Calcareous	<p>These deep somewhat poor or poorly drained soils have a high concentration of calcium carbonate in the soil profile. They are moderately to strongly alkaline.</p> <p>Suitability of this soil for: <u>Upland Oaks = low</u> <u>Conifers = low</u> <u>Bottomland Hardwoods = moderate</u></p> <p>SI= <45. Production = <100 board feet/acre/year</p>	<p><u>Hardwoods</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • Bur Oak • Swamp White Oak • Hackberry • Shellbark Hickory (consult forester) • Sycamore • Cottonwood • River Birch • Willow 	<p><u>Conifers</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • E. Red Cedar • Jack Pine (nn) 	<p><u>Shrubs</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • American Plum • Dogwood, Gray • Nanking Cherry (nn) • Nannyberry • Ninebark
9 Saline/Sodic	<p>These deep soils have high concentrations of soluble salts and/or sodium in the soil profile. They are strongly or very strongly alkaline.</p> <p>Suitability of this soil for: <u>Upland Oaks = low</u> <u>Conifers = low</u> <u>Bottomland hardwoods = moderate</u></p> <p>SI = <45 Production = <100 board feet/acre/year</p>	<p><u>Hardwoods</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • Silver Maple • Cottonwood • Willow 	<p><u>Conifers</u> are not suitable for these sites.</p>	<p><u>Shrubs</u> suitable for plantings consist of:</p> <ul style="list-style-type: none"> • Buttonbush • Dogwood, Silky • Elderberry
10 Shallow Soils and Misc. Areas	<p>These areas are mapped as miscellaneous land types or are very shallow soils. Consultation with a professional forester is advised to determine which tree or shrub species may be suited to these sites. Many existing timber areas are found on the shallow soils (i.e. Nordness) in this group.</p>	<p>Consult with a professional forester for recommendations.</p>	<p>Consult with a professional forester for recommendations.</p>	<p>Consult with a professional forester for recommendations.</p>